

## C L A I M S

1. Process for the production of smoke adapted for smoking agro-food products, said smoke being obtained by  
5 pyrolysis of an organic material, preferably vegetable, characterized in that it comprises essentially the steps consisting in:

- introducing said organic material to be pyrolyzed in a  
pyrolysis reactor comprising essentially a  
10 substantially hermetically sealed heatable chamber containing at least one rotatable endless screw heated by the Joule effect receiving said organic material, said material being introduced at one end of said at least one screw,
- 15 - heating said organic material in said chamber to a temperature comprised between 200°C and 800°C, preferably between 300°C and 400°C, so as to effect pyrolysis during its movement, under the influence of rotation of said at least one screw, and
- 20 - removing the consumed organic material and the produced smoke from the other end of said at least one screw.

2. Process according to claim 1, characterized in  
25 that the organic material is dried by preheating before being pyrolyzed, preferably in at least one specific preheating zone provided in the reactor and more preferably by electric heating of said zone or zones by the Joule effect.

30 3. Process according to claim 1 or 2, characterized in that the heating of the organic material for its

pyrolysis takes place by direct heating of the rotatable endless screw or screws, by electric heating by the Joule effect.

5           4. Process according to any one of claims 1 to 3, characterized in that the produced smoke is condensed at the outlet of the reactor in a suitable condensation device.

10           5. Process according to any one of claims 1 to 4, characterized in that at least one portion of the pyrolysis gas present at the outlet of the condensation device is re-injected into the reactor.

15           6. Process according to any one of claims 1 to 5, characterized in that the pyrolysis takes place under precise control, to about 0.1%, of the volume content of oxygen in the reactor.

20           7. Process according to any one of claims 1 to 6, characterized in that the pyrolysis takes place under precise control, to about one degree Celsius, of the temperature prevailing in said reactor.

25           8. Process according to any one of claims 1 to 7, characterized in that the pyrolyzed organic material is essentially constituted by wood chips, in particular wood adapted for the flavoring or the aging of wines and/or spirits.

30           9. Process according to any one of claims 1 to 7, characterized in that the pyrolyzed organic material is

essentially constituted by fibers or chips of at least one vegetable substance such as wood, cellulose, any other polysaccharide or lignocellulose complex.

5           10. Use of a pyrolysis reactor for the practice of the process according to any one of claims 1 to 9, of the type comprising essentially a substantially hermetically sealed heatable chamber containing at least one rotatable endless screw heated by the Joule effect, said at least one  
10 screw receiving an organic material to be pyrolyzed, for the production of smoke adapted for the smoking of food products.

          11. Use according to claim 10, for the production of  
15 liquid smoke.

          12. Use according to claim 10, for the production of wood charcoal.

20           13. Smoke adapted to food product smoking, obtained by the process according to any one of claims 1 to 9, characterized in that it has, once condensed as liquid smoke, a volume content of benzo[a]pyrene of at most 10 ppb and a volume content of benzoanthracene of at most 20 ppb.

25           14. Liquid smoke obtained by condensation of smoke according to claim 13.

          15. Foodstuff smoked by the use of smoke according to  
30 claim 13 and/or liquid smoke according to claim 14.